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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/070,164 | 05/13/2002 | Hiroyuki Teratani | Q68784 | 9195 |

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| EXAMINER | |
|---|---|
| FISCHER, JUSTIN R | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1733 | |

DATE MAILED: 11/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) |
|---|---|---|
| | 10/070,164 | TERATANI ET AL. |
| | Examiner | Art Unit |
| | Justin R Fischer | 1733 |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *06 October 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) *1,2,12-20,22-29 and 39* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-11,21 and 30-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *0804 and 0904*.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 3, 6, 7, 30-32, 34, and 37 are rejected under 35 U.S.C. 102(e) as being anticipated by Corvasce (US 6,202,726). As best depicted in Figure 1, Corvasce is directed to a runflat tire construction in which a side reinforcing layer or sidewall insert 8 is arranged at an inner side of the tire and adjacent the carcass, wherein said insert is formed of a polybutadiene containing from 35 to 90 percent vinyl groups (analogous to having a content of vinyl linkage of 25% or more in conjugated diene units) (Column 6, Lines 5-10). In this instance, the polybutadiene is incorporated into the insert in an amount of 100 phr, which is seen to constitute "40% by weight or more" as set forth in the claimed invention (Column 2, Lines 45-50).

As to claims 30-32 and 34, Corvasce suggests the use of at least one of carbon black, precipitated silica, and modified carbon black (Column 2, Lines 65+).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Corvasce as applied in the previous paragraph and further in view of Halasa (EP 985,554). In describing the insert composition, Corvasce states that it can be formed of a high vinyl polybutadiene having between 35 and 90 percent vinyl groups. The reference, however, is completely silent with respect to the weight average molecular weight and the molecular weight distribution of the insert composition. In any event, the ranges of the claimed invention are broad and are consistent with a wide variety of tire rubber compositions, including sidewall insert compositions, as shown for example by Halasa (Paragraphs 78 and 80). It is further noted that applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed parameters. Lastly, while Halasa describes a tin coupled polymer, it is emphasized that the broad ranges of the claimed invention are consistent with a wide variety of rubber compositions used in tires.

5. Claims 8-11 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Corvasce and further in view of Halasa and Cohen (US 6,573,324). In describing

the insert composition, Corvasce states that it can be formed of a high vinyl polybutadiene having between 35 and 90 percent vinyl groups. The reference, however, fails to describe the rubber composition as being coupled, for example "tin coupled". In any event, the technique of coupling (e.g. tin coupling) is extremely well known in the tire industry, particularly in the manufacture of tire treads to achieve improved treadwear and reduced rolling resistance. More recently, though, the concept of coupling, particularly tin coupling, has been used in the manufacture of tire sidewall inserts since it provides reduced hysteresis, improved cold flow characteristics, and better processability, as shown for example by Halasa (Paragraphs 12-18) and Cohen (Column 4, Lines 35-45). It is noted that Cohen describes a preferred embodiment in which at least 50 percent and more preferably between 60 and 85 percent of the tin bonds are bonded to butadiene units (one would expect greater than 40% of the polymer to be coupled as it is defines a broad range that is consistent with tire rubber compositions). As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to form the rubber of Corvasce as a "tin coupled" rubber absent any conclusive showing of unexpected results.

It is initially noted that the critical feature of the claimed invention, as illustrated by Tables 8 and 9 and applicant's arguments, is the use of a conjugated diene based elastic polymer having a content of vinyl linkage of 25% or more. In this instance, Corvasce only expressly describes five possible elastomers for the sidewall insert, one of them being a high vinyl polybutadiene. The inclusion of a tin coupling agent in the claimed invention appears to be a modification of the base rubber composition that is

consistent with the manufacture of a wide variety of tire components, including sidewall inserts.

As to claim 10, Cohen recognizes the inclusion of a tin coupling agent at the end of the polymerization reaction, as is common in the rubber industry (Column 4, Lines 35-40).

Regarding claim 11, there are a wide variety of well-known tin coupling agents, perhaps the most common being tetrachloride, as shown for example by Halasa (Paragraph 42).

With respect to claim 21, Halasa suggests that a degree of branching is obtained by using tin tetrahalides (Paragraph 42), which, as noted above, represents one of the most common forms of tin coupling agents.

6. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Corvasce and further in view of Gorce (US 5,665,812). As noted above, the rubber sidewall insert of Corvasce can include a combination of carbon black and silica. While Corvasce fails to suggest the specific surface area of the silica, the claimed range defines the well-known and extensively used forms of silica in the tire industry. For example, Gorce is directed to a rubber composition useable in the manufacture of tire components, wherein the silica has a specific surface area less than or equal to 450 $m^2/g$ (Column 9, Lines 10-15), which encompasses the entire range of the claimed invention. It is emphasized that the claimed surface areas are consistent with the common forms of silica used in the tire industry. Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would

have found it obvious to include silica having a specific surface area between 50 and 400 $m^2/g$ in the rubber composition of Corvasce.

7. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Corvasce and further in view of Muraoka (US 5,907,009). As noted above, the rubber member or insert of Corvasce includes carbon black. While Corvasce fails to suggest the specific surface area of the carbon black, the claimed range defines the well-known and extensively used forms of carbon black in the tire industry. For example, Muraoka is directed to a rubber composition useable in the manufacture of tire components, wherein the carbon black has a specific surface area between 100 and 200 $m^2/g$ (Column 5, Lines 55-61), which falls entirely within the range of the claimed invention. It is emphasized that the claimed surface areas are consistent with the common forms of carbon black used in the tire industry. Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to include carbon black having a specific surface area between 50 and 400 $m^2/g$ in the rubber composition of Corvasce.

8. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Corvasce and further in view of Matsuo (EP 963,863). In describing the composition of the sidewall insert 8, Corvasce suggests the inclusion of a wide variety of additives, as is well known and conventional in the tire industry (Column 6, Lines 65+). While Corvasce fails to expressly suggest the inclusion of sodium 1,6-hexamethylenedithiosulfate dihydrate, this additive represents a well-known and conventional material that promotes reversion resistance and improves ageing

characteristics. For example, Matsuo is directed to a similar runflat tire construction in which sodium 1,6-hexamethylenedithiosulfate dihydrate is included in the insert composition for the benefits detailed above (Page 3, Paragraph 16). Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to incorporate sodium 1,6-hexamethylenedithiosulfate dihydrate into the runflat composition of Corvasce.

9. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Corvasce in view of either one of Nishikawa (US 6,415,840) or Nishikawa (US 6,209,604). As noted above, Corvasce is directed to a runflat tire construction having a sidewall insert formed of a high vinyl polybutadiene. While the reference is silent as to the inclusion of a rubber filament composite in the sidewall, it is extremely well known to include such a component in a runflat tire in order to improve runflat durability while contributing to the reduction of tire weight, as show for example by either one of Nishikawa '840 (Column 2, Lines 55-65 and Figure 3) or Nishikawa '604 (Column 1, Line 64+ and Figure 1). Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to include a rubber filament composite in the sidewall of Corvasce.

***Response to Arguments***

10. Applicant's arguments with respect to claims 3-11,21, and 30-38 have been considered but are moot in view of the new ground(s) of rejection. In particular, applicant contends that Halasa fails to suggest the requirement of a vinyl linkage of 25% or more in conjugated diene units (required in light of amendment). It is agreed that

Halasa is silent with respect to this characteristic; however, newly cited Corvasce specifically suggests the use of a high vinyl polybutadiene in the manufacture of a sidewall insert. Furthermore, while the results of Tables 8 and 9 demonstrate improved runflat capability and ride comfort due to a high vinyl linkage, these benefits would be expected in the runflat tire of Corvasce since the reference expressly teaches a sidewall insert incorporating such a high vinyl elastomer.

***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nakamura (EP 0882,738) teaches a diene rubber composition useable in the sidewall, carcass, and bead and having a high vinyl content (preferably 50 to 80 percent) and a weight average molecular weight between 100,000 and 2,000,000. Yasuda (US 4,824,899) is directed to a rubber composition for a bead filler comprising a blend of natural rubber and a synthetic diene rubber, such as a high vinyl content polybutadiene rubber. Araki (EP 0924107) is directed to a tin coupled rubber composition in which the vinyl content is between 40 and 70% of a butadiene portion.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R Fischer** whose telephone number is **(571) 272-1215**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Justin Fischer

November 4, 2004

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